

A Tall Order

Reporting Category Measurement

Topic Measuring length with nonstandard units

Materials

- Bulletin board paper
- Pencils
- Markers
- Various manipulatives for measuring length (e.g., paper clips, wooden blocks, cubes, craft sticks)

Vocabulary

shorter, longer, taller

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. If your school principal is willing, have him lie on a piece of bulletin board paper, and have two students trace around his outline with pencil. (Alternatively, trace another adult volunteer.)
2. Each day, have students estimate and measure the length of the principal's body or some other dimension, using a different nonstandard unit of measure (e.g., handprint, footprint, various manipulatives). Record on the outline each nonstandard measurement made (e.g., Mr. Wade is 12 hands long. Mr. Wade's arm is 9 craft sticks long.).
3. Compare and discuss the nonstandard units of measure. Prompt discussion by asking questions such as, "If Mr. Wade's body is 12 hands long, do you think he will be 12 paper clips long, too? Why, or why not?"
4. When several nonstandard units have been used and recorded, post the outline in the classroom to use as a reference for additional measuring experiences.

Assessment

- **Questions**
 - "What do you notice about the measurements we have made? Why do you think we have so many different measurements for the same length?"
 - "If we measured the length of your body, would it be the same as Mr. Wade's? Why, or why not? Can you think of another person whose measurements might be close to Mr. Wade's? Why?"
 - "If Greta measured Mr. Wade's arm and found it was 18 paper clips long, and then Will measured Mr. Wade's arm and found it was 23 paper clips long, could both of them be right? Why, or why not?"

- **Journal/Writing Prompts**

- “Prior to measuring, estimate how many blocks long Mr. Wade’s leg is. After measuring, compare your estimate and the actual number of blocks it took to measure Mr. Wade’s leg. Was your estimate too large or too small? Why?”
- “Find two objects in the math or science center to measure, using cubes or craft sticks. Draw and write about the objects you measured.”

- **Other**

- Have students work in pairs to make a piece of clothing (shirt, pants, shoes) out of construction paper that will fit Mr. Wade. Have pairs share with the class the strategies they used to solve this measurement problem.
- Have students work in pairs to measure the same object with different manipulatives. Have pairs explain why they got different measurements with each manipulative.

Extensions and Connections (for all students)

- Have students trace outlines of each other to measure with nonstandard units. These outlines may be rolled up and saved to be used for several days.

Strategies for Differentiation

- Pair students to assist each other with measuring tasks.
- Provide a sentence frame such as, “Mr. Wade is _____ (number of nonstandard units) tall.”
- Provide a poster with the body parts labeled as a reference for naming/spelling body parts.
- Allow students who have difficulty writing to dictate their ideas to the teacher.